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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/803,727	03/18/2004	Anthony L. Peck	KIL01 P-434	6033

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EXAMINER	
BOES, TERENCE	

ART UNIT	PAPER NUMBER
3682	

DATE MAILED: 06/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/803,727	PECK, ANTHONY L.	
	Examiner	Art Unit	
	Terence Boes	3682	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 November 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 March 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *03/18/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Great Britain on 03/20/2003. It is noted, however, that applicant has not filed a certified copy of the application as required by 35 U.S.C. 119(b).

Drawings

New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because drawings are unclear (see draftsperson's review). Applicant is advised to employ the services of a competent patent draftsperson outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

The drawings are objected to under 37 CFR 1.83(a) because they fail to show the following as described in the specification.

- Worm gear 78 acting upon external gears 80
- Shaft 26 causes the idler gear 32 to orbit around the inside of the internal gear 38.

Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if

only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the following must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

- Controller for controlling the adjuster means, as in claim 23
- Orbital wheel driven in an orbit around an interior periphery of an internal wheel, as in claim 2.
- Orbital wheel driven by an idler wheel, as in claim 3.
- Orbital wheel directly driven by engagement with the interior periphery of the internal wheel, as in claim 4.
- Non-linear contour formed in the slot, as in claim 10.

- Six said drive train units operating at 60 degrees steps out of phase with one another, as in claim 18.
- Three or more said drive train units operating at equal angular steps, as in claim 19.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the

art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-23 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Re clms 1, 11, 22

What structure allows for a "drive train unit" and what structure allows for "adjuster means for continuously varying a ratio of input shaft speed to output shaft speed"? More specifically, the examiner does not understand how power is conveyed from shaft (26) to ring gear (38) or orbital gear (34) or idler gear (32). While each gear is shown in Figure 1, no structure can be ascertained for transmitting motion from the shaft (26) to gears (32,34,38). How is power transmitted from shaft (26) to gears (32,34,36)? What structure allows for this? Referring to paragraph [0039] of the specification, how does "the rotation of the main shaft 26 [cause] the idler gear 32 to orbit around the inside of the internal gear 38"? Does the shaft (26) engage the orbital gear (34), the idler gear (32), the ring gear (38), or is motion transferred by some other means?

Re clm 2,

What structure allows for an "orbital wheel to be driven in an orbit around an interior periphery of an internal wheel"? More specifically, the examiner does not understand how power is conveyed from shaft (26) to orbital gear (34). While the shaft and gear are shown in Figure 1, no structure can be ascertained for transmitting motion

from the shaft (26) to the orbital gear (34). How is power transmitted from shaft (26) to gear (38)? What structure allows for this? Referring to paragraph [0039] of the specification, how does "the rotation of the main shaft 26 [cause] the idler gear 32 to orbit around the inside of the internal gear 38"? Does the shaft (26) engage the orbital gear (34), the idler gear (32), the ring gear (38), or is motion transferred by some other means?

Re clm 3

What structure allows for an "orbital wheel to be driven by an idler wheel"? More specifically, the examiner does not understand how power is conveyed from idler gear (32) to orbital wheel (38). While the gears shown in Figure 1 do indeed mesh, no power source can be ascertained for the driving gear (32), and therefore orbital wheel (38) cannot be "driven" as claimed. Referring to paragraph [0039] of the specification, how does "the rotation of the main shaft 26 [cause] the idler gear 32 to orbit around the inside of the internal gear 38"? Does the shaft (26) engage the orbital gear (34), the idler gear (32), the ring gear (38), or is motion transferred by some other means?

Re clm 4

What structure allows for an "orbital wheel [to be] directly driven by engagement with the interior periphery of the internal wheel"? Due to the fact that it is unclear how the ring gear (38) is driven, it is not understood by the examiner how the orbital wheel can also be driven.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 5, 8-13,14-18, 20, 22 and 23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The recitation "...orbital wheel has one-third of a radius of the internal wheel" renders claim 5 indefinite. Specifically, what about the orbital wheel is one-third of a radius of the internal wheel? The circumference, the radius, or some other dimension?

The terms "substantially" in claims 8,22 is a relative term which renders the claim indefinite. The term "substantially" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. What speed would be considered substantially constant? Would a minimum of 90% of maximum be considered "substantially" constant? Or, would a minimum of 99.8% of maximum be considered "substantially" constant? Examiner notes that both of these values are explicitly stated in the specification.

The terms "substantially" in claim 9 is a relative term which renders the claim indefinite. The term "substantially" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. What is meant by "substantially perpendicular"? Is 80 degrees "substantially" perpendicular...is 70 degrees?

The phrase "may be" in claim 11 renders the claim indefinite. The examiner does not understand if the subject matter following the phrase is being positively recited or not.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 8-11, 14-19, and 21-23, as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Park USP 6,016,791.

Park Discloses,

Re clm 1:

- A rotary input shaft (14)
- A rotary output shaft (see fig 3, shaft runs through 74, 76)
- A drive train unit (see fig 1) between the input and output shafts
- Adjuster means (172,174,165,151) for continuously varying a ratio of input shaft speed to output shaft speed
- Regulator means (158,72,12,32,26) for regulating the output shaft speed to be substantially constant at a given substantially constant input speed
- Regulator means includes an orbital wheel (12) being adapted to transmit power from an output element (26) located eccentrically thereon.

Re clm 8

- Output element is adapted to reciprocate a drive rod (20) via a slot (32)
- Regulator means regulating the drive rod to move with a cycle having a portion of substantially constant speed linear motion (the examiner notes that "a portion" could be very small, and therefore, could easily be construed as "substantially linear").

Re clm 9

- Slot is substantially perpendicular to a direction of reciprocation of the rod (The examiner notes this direction is variable and that at 2 points of each reciprocation cycle, the slot is exactly perpendicular to the direction of reciprocation)

Re clm 10

- Regulator means includes a non-linear contour (pin 26 is circular and is formed in the slot) formed in the slot

Re clm 11

- A rotary input shaft (14)
- A rotary output shaft (see fig 3, shaft runs through 74, 76)
- A drive train unit (see fig. 1) between the input and output shafts
- Adjuster means (172,174,165,151,153) for continuously varying a ratio of input shaft speed to output shaft speed
- Adjuster means is passively operable (adjuster means can be operated and left alone to operate)

Examiners note: the recitation "...whereby ratio change may be provided without actively driving theoutput shaft upon an input adjustment to the adjuster means", is given little patentable weight as the phrase "may be" also implies that a ratio change may not be provided.

Re clm 14

- Adjuster means includes an arcuate member (153) having one point thereon driven by the drive rod for selectively pivoting the arcuate member about a pivot point (pivot point is located on fulcrum 172).

Re clm 15

- Adjuster means includes means for moving a pivot point (174) for varying a ratio of input shaft speed to output speed of the transmission (C8-C9).

Re clm 16

- An output rod (162) is provided with one point (160) thereon (Examiner notes: rod is capable of being selectively driven by the arcuate member and is therefore considered to be adapted to do the same)

Re clm 17

- Output rod is adapted to drive the output shaft via a unidirectional coupling (38)

Re clm 18

- Six said drive train units (C4/L40-50) operating at 60 degrees steps out of phase with one another (Six units driving a shaft for smooth rotation inherently operate at 60 degrees out of phase).

Re clm 19

- Three or more said drive train units (C4/L40-50) operating at equal angular steps operating at equal angular steps out of phase with one another (equal steps is inherent).

Re clm 21

- Adjuster means is arranged to be operable to above a 1:1 input to output speed ratio with output speed higher than input speed (see fig 4, distance of lever arm 176 is capable of being less than distance of lever arm 168 yielding above a 1:1 input to output ratio)

Re clm 22

- A rotary input shaft (14)
- A rotary output shaft (see fig 3, shaft runs through 74, 76)
- A drive train unit (see fig 1) between the input and output shafts
- Adjuster means (172,174,165,151,153) for continuously varying a ratio of input shaft speed to output shaft speed
- Regulator means (158,72,12,32,26) for regulating the output shaft speed to be substantially constant at a given substantially constant input speed
- Regulator means includes an orbital wheel (12)

Examiner notes: because orbital wheel is capable of reciprocating a linearly slidable rod (20) via a slot (32) it is considered to be "adapted to" do the same.

- Slot having a non-linear contour (because slot 32 contains pin 26 the slot is considered as having a non-linear contour)

Examiner notes: the recitation "for regulating the rod to move with a cycle having a portion of substantially constant speed linear motion" is considered to be an intended use of the apparatus. A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from the prior art apparatus." Therefore, clm 22 is rejected since all claim limitations have been met as disclosed above (see MPEP 2114).

Re clm 23

- A controller (34)

Re the recitation " for controlling the adjuster means to maintain output shaft sped constant upon variance of input shaft speed", in claim 23. A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from the prior art apparatus." Therefore, clm 23 is rejected since all claim limitations have been met as disclosed above (see MPEP 2114).

Claims 11 and 20, as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Papanicolaou USP 6,119,539.

Papanicolaou discloses:

Re clm 11

- A rotary input shaft (6)
- A rotary output shaft (58)
- A drive train unit (see fig 2) between the input and output shafts
- Adjuster means (40) for continuously varying a ratio of input shaft speed to output shaft speed
- Adjuster means is passively operable

Examiners note: the recitation "...whereby ratio change may be provided without actively driving the output shaft upon an input adjustment to the adjuster means", is given no patentable weight as the phrase "may be" also implies that a ratio change may not be provided.

Re clm 20

- Adjuster means is arranged to be operable to a 1:0 input to output speed ratio (see abstract)

Claims 1-7, as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Gogins USP 5,392,664.

Gogins discloses:

Re clm 1

- A rotary input shaft (18)
- A rotary output shaft (20)
- A drive train unit (see fig 1) between the input and output shafts
- Adjuster means (48) for continuously varying a ratio of input shaft speed to output shaft speed

- Regulator means (40,22,18,70,76,74,68) for regulating the output shaft speed to be substantially constant at a given substantially constant input speed
- Regulator means includes an orbital wheel (74) being adapted to transmit power from an output element (70) located eccentrically thereon.

Re clm 2,

- The orbital wheel driven in an orbit around an interior periphery of an internal wheel (76).

Re clm 3,

- Orbital wheel is further driven by an idler wheel (68)

Re clm 4

- Orbital wheel is directly driven by engagement with the interior periphery of the internal wheel (see figure 8)

Re clm 5

- Orbital wheel has one-third of a radius of the internal wheel (as best understood).

Re clm 6

- Output element is located from 0.05R to 0.25R from a center of the orbital wheel, where R is a distance from the center of the orbital wheel to a center of a circular orbiting motion thereof. (output element 70 is a radial element and appears to be located at multiple radii including this range)

Re clm 7

- Each said wheel comprises a toothed gear (68,74,76)

Claim Rejections - 35 USC § 103

Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park (USP 6,016,791) in view of Rapisarda (USP 3,189,271).

Park discloses all of the claimed subject matter as described above. Park does not disclose adjuster means including a lost motion device, including a spring, enabling motion of an input adjuster of the adjuster means to be lost during a driving mode of the drive train unit

Rapisarda teaches adjuster means include a lost motion device (118,122,114,116), including a spring (122), enabling motion of an input adjuster (126) of the adjuster means to be lost during a driving mode of the drive train unit for the purpose of selectively locking or unlocking and adjustment handle and engaging/disengaging adjustment worm (C5/L45-60)

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the teachings of Park and provide an adjuster means including a lost motion device enabling motion of an input adjuster of the adjuster means to be lost during a driving mode of the drive train unit, as taught by Rapisarda, for the purpose of selectively locking or unlocking and adjustment handle and engaging/disengaging adjustment worm.

Re clm 13, a claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed

apparatus from the prior art apparatus." Therefore, clm 13 is rejected since all claim limitations have been met as disclosed above (see MPEP 2114).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Specifically USP 5,440,945 discloses an infinitely variable transmission.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Terence Boes whose telephone number is (571) 272-4898. The examiner can normally be reached on Monday - Friday 9:00 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on (571) 272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TB
6/15/06

RICHARD RIDLEY
SUPERVISORY PATENT EXAMINER